



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

February 16, 1984

Mr. Laurence Ashdown  
U. S. Steel Corporation  
P. O. Box 569  
Lander, WY 82520

RE: Final Reclamation Concerns  
for the Desert Mound Mine  
ACT/021/003  
Iron County, Utah

Dear Mr. Ashdown:

This letter is in response to USSC's decision to perform final reclamation at the Desert Mound Mine. In order to proceed more thoroughly with final reclamation the Division of Oil, Gas and Mining has compiled the enclosed comments suggestions, and requirements for your information and response. They are based upon the following:

- A. A review of the approved mining and reclamation plan and the communications which have been placed into the file subsequent to its approval on May 25, 1982.
- B. Two recent site inspections performed August 3, 1983 and January 20, 1984.
- C. A Division staff meeting regarding the project held on February 2, 1984.
- D. A telephone communication with Roy Benson of U. S. Steel and Tom Tetting of the Division held on February 3, 1984.

Major concerns considered by the Division staff in formulating the enclosed proposals include the complicated interrelationships of claims and disturbances created by Utah International, CF and I and USSC and the additional factor of both pre-law (1975) disturbances and new mining efforts occupying adjacent locations. Furthermore, the Division has attempted to take into consideration cost effective strategies based upon reclamation efforts and developments of the last six to eight years. Consequently some of

the proposals contained in this letter may differ somewhat from those which strictly make up the original designs (though not necessarily the intent) of the approved mining and reclamation plan.

The following designs are proposed for your comment:

1. Regrading efforts at rounding off the waste dumps appear to have been effective and should continue to completion for all "Post-Act" disturbed areas, if this has not already been accomplished.

1.1 Please indicate how regrading efforts have stabilized the waste dumps.

1.2 Potential development of tension cracks and slippage should be monitored during the next three years.

1.2.1 Should signs of instability appear, a lesser angle of side slope design will have to be developed, particularly on the "high dump" areas.

1.2.2 Due to unknown factors affecting stability of these particular waste dumps such as dump height, angle of repose for the material and particle size of waste rock, USSC should understand that regrading may still be required should signs of instability appear. A determination will be made within the time frame that revegetation efforts are assessed and determined successful.

1.2.3 Stability of waste dump side slopes may not be significantly improved by revegetation efforts, especially due to the large diameter waste rock gravel and boulders present. Therefore, revegetation of all side slopes is not recommended in this case.

2. Reclamation around the Mountain Lion Pit has proceeded without prior written approval of the Division. Consequently, the following action is required.

2.1 A variance to Rule M-10(3) - Impoundments, must be requested by USSC to retain the existing 17-foot deep lake in the pit bottom.

2.2 The following measures, if implemented, may justify or allow the granting of a variance:

2.2.1 A properly sized overflow channel may be ripped or blasted in the benchrock sufficient to prohibit potential overflow from eroding the recently topsoiled bench surrounding the lake.

2.2.2 This channel should be sized to handle the spring inflow and all surface run off, directing the water along the western edge of the pit access road into the alluvium to the north where it was originally approved for pumping during operations.

2.2.2.1 To restrict vehicle access to the lower pit and also allow free flow of potential impoundment overflow, the following suggestion is offered; the overflow channel might be directed between several large (4' - 6'+) boulders, possibly eliminating the need for a waste rock pile barrier at this location or supplementing it.

2.2.3 The water level of the lake could then be monitored with measurements taken twice yearly (Spring and Fall) and included in a summary report to be filed prior to final bond release.

2.3 Seeding of the topsoil distributed on the benches should be undertaken as specified in number 8 below. Achievement of revegetation standards for this area is urged in lieu of removing the topsoil already distributed on the benches.

3. The use of additional alluvium as a topsoil material for the tops of the waste dumps is recommended as a solution to the difficult task of establishing new growth on the waste rock. A prime source of this material is located adjacent to the area of original disturbance and present borrow locations along the access road to the Mountain Lion Pit. The borrow area which is suggested, is known locally as the "ant hills" and was previously mined prior to the Act. Natural revegetation has invaded the area composed of unnatural mounds or bumps. If USSC were to obtain the landowner's permission to utilize the area, the following benefits would be realized:

3.1 A source of topsoil would be generated which could considerably increase the revegetation potential of the tops of the dumps, a prime factor for completing final reclamation.

3.2 A more natural and complete recontouring of the entire area would be achieved by eliminating the "ant hills".

3.3 The reseeding of the "ant hill" area with a diverse grass mixture would greatly benefit the grazing potential of the land and therefore should not be viewed as inappropriate. Revegetation success in the area of the alluvium has been excellent, as evidenced by Utah International's work.

3.4 Use of the borrowed topsoil would require that only one soil analysis be performed to determine nutrient levels, whereas if it were not utilized, several (i.e. every 200 feet as agreed upon) analyses would need to be performed on the dump's waste rock material. This single analysis should consist of a combined random representative sampling of the "ant hill" area.

3.4.1 Phosphate and potassium levels should especially be analyzed (not to preclude other parameters for analysis suggested in the Division's September 9, 1983 correspondence) and an analysis made on the material already spread on the benches in the pit. This material may be similar to that of the "ant hills", but has already had an unapproved application of 200 lbs/acre  $\text{NH}_4\text{NO}_3$ . Further, analyses may determine that additional amendments will be necessary. Analyses should be submitted to the Division as soon as possible prior to any further soil distribution.

3.5. If borrowed topsoil material remains after resspreading 3 - 6 inches over the tops of the dumps it should be spread and mixed with the material on the surface of the regraded 92-acre reservoir-load out area around the main office and shops. This area may prove difficult to revegetate due to the high clay content, unless additional material is provided. Alternate measures may be required if the success standard is not reached after three years.

4. Fencing should be installed prohibiting access to all areas of pits, dumps and potential hazards.

5. The Blackhawk Fines area should have the dumps, roads and disturbed areas scarified and reseeded according to the revegetation plan.

6. The power lines and water well need to be removed and the areas reclaimed.

7. The large haul road should be ripped and seeded and attempts made to direct traffic away from its use. Since two roads exist which actually service the same areas, one of the roads should be chosen as the most beneficial, and turned over to county or private use and the remaining road should be reclaimed. If USSC's road is not desired to be reclaimed at this time, the concept should be discussed with the Division further.

8. The following revegetation plans should be observed:

8.1 All areas to be reclaimed should be ripped and/or scarified to create a good seedbed with the depth of ripping dependent upon the depth and degree of compaction. Ripping and scarifying should follow the contour of the slope. This will create small catchment basins for water and help prevent erosion.

- 8.2 Seeding efforts should be concentrated on those areas where success is feasible (e.g. flat topped areas, haul roads, etc.). Seeding of mine dump slopes, if extremely rocky, will probably result in seeding failure and unnecessary cost.
- 8.3 The method of seeding to be used (broadcast or drilled) should be decided upon and the proper equipment and seed secured in advance. This will help eliminate delays during seeding time. Considering the species proposed for reclamation, fall seeding is advised.
- 8.4 Mulch should be used on all reseeded areas. If straw mulch is to be used, it must be crimped into the soil or anchored using alternative methods. If hydromulch is to be used, a tackifier to hold the mulch in place is advised.
- 8.5 The operator may want to vary the seed mix (species and/or rates) used for each area to be revegetated (mine dumps vs. haul roads vs. office area, etc.). Species and rates should be selected depending on monitoring results, aspect, soils, etc. at each site. Containerized shrub seedlings and/or bareroot stock may also enhance reclamation. If conditions prove too harsh for successful shrub establishment from seed, this may be a necessary alternative.
- 8.6 Irrigation of the site as proposed is optional and may not prove cost-effective. If seeding occurs in the fall or early spring, irrigation would probably not be needed. However, if seeding or planting of shrubs is attempted during the summer months, irrigation may be necessary.
- 8.7 The applicant should consider options for protection of reclaimed areas from disturbance, particularly disturbance created by grazing and off-road vehicles. The mine dump area and office complex are fenced and should provide adequate protection if maintained. However, protection for the haul road and powerline reclamation may require additional measures.
- 8.8 Reclaimed areas should be monitored periodically to assess the success of reclamation, to treat erosion problems and failed plantings, and to note other special conditions at each site. Enclosed are some general guidelines for monitoring revegetation success. These guidelines are designed to help the operator devise a reclamation monitoring plan for their specific area.
9. Removal of all remaining structures should be completed.
10. A timetable (schedule) and reclamation commitment regarding the aspects of final reclamation discussed in this letter should be submitted by the company.

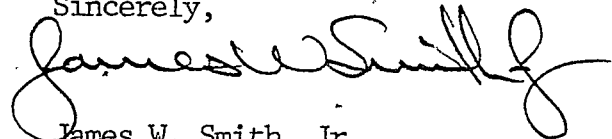
Mr. Laurence Ashdown  
February 16, 1984  
Page 6

11. The reclamation bond currently held by the Division for the Desert Mound Mine operated by USSC may be eligible for release upon completion of three successful growing seasons after final reclamation work is finished.

Although this letter has become rather lengthy, its design has been to specifically pinpoint areas of Division concern and draw together many divergent plans and proposals. If there are any additional issues which should be considered, please do not hesitate to contact the Division. Also, please review the items and reference them by number in USSC's letter of commitment which proposes the timetable for final reclamation. The letter should also include the request for a variance as indicated in item 2.1.

Thank you very much for your cooperation and best wishes for every chance of success in your future efforts.

Sincerely,



James W. Smith, Jr.  
Coordinator of Mined  
Land Development

JWS/TNT:jvb

enclosure

cc: Russel Dahl, Superintendant of Western Ore  
Roy Bensen, USSC Keigley Quarry  
Ron Daniels, DOGM  
Steve Cox, DOGM  
Wayne Hedberg, DOGM  
Pam Grubaugh-Littig, DOGM  
Tom Portle, DOGM  
Tom Tetting, DOGM